Paper No. 18

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Ex parte OLAF JACH and LOTHAR DIEHL

Appeal No. 2002-1191
Application No. 09/101,175

ON BRIEF

Before WALTZ, JEFFREY T. SMITH and MOORE, ***Administrative Patent Judges***.

JEFFREY T. SMITH, ***Administrative Patent Judge.***

DECISION ON APPEAL

Applicants appeal the decision of the Primary Examiner finally rejecting claims 21 to 24, 27 to 35, 37 and 40 to 44.[1, 2] We have jurisdiction under 35 U.S.C. § 134.

[1] In rendering our decision, we have considered Appellants' arguments presented in the Brief, filed May 30, 2001, and the Reply Brief, filed September 24, 2001.

[2] The Examiner has indicated that the subject matter of claims 38 and 39 is allowable; however, these claims have been objected to as being dependent upon a rejected claim. (Answer, p. 1).

BACKGROUND

According to Appellants, the invention relates to an electrochemical sensor and a method of production of an electrochemical sensor. The electrochemical sensor measures the gas concentration, such as oxygen, of a sample gas. The invention is said to have the advantage of preventing liquid and solid components contained in the sample gas from penetrating the interior sensor. (Brief, p. 3). Claim 44, which is representative of the claimed invention, appears below:

> 44. An electrochemical sensor for measuring a gas concentration of a sample gas, comprising:
>
> an electrochemical element including:
>
> an electrochemical pump cell having a first electrode, a second electrode and a gas chamber in fluid communication with the sampled gas via a gas inlet opening, the gas chamber containing one of the first electrode and the second electrode,
>
> wherein the electrochemical sensor is produced by:
>
> providing the sampled gas to the gas chamber of the electrochemical pump cell via the gas inlet opening,
>
> completely covering the gas inlet opening with a covering layer, and
>
> after the gas inlet opening is covered, applying a porous cover over the gas inlet opening so that the porous cover completely covers the gas inlet opening.

CITED PRIOR ART

As evidence of unpatentability, the Examiner relies on the following references:

Furutani et al. (Furutani)	4,272,349	Jun. 09, 1981
Holfelder et al (Holfelder)	4,502,939	Mar. 05, 1985
Murase et al. (Murase)	5,130,002	Jul. 14, 1992
Mase et al. (Mase)	5,169,513	Dec. 08, 1992
Friese et al. (Friese)	5,314,604	May 24, 1994
Makino et al. (Makino)	5,676,811	Oct. 14, 1997 (filed Oct. 24, 1995)

The Examiner has rejected claims 21 to 24, 27 to 29, 32, 33, 35, 37 and 40 to 44 as unpatentable under 35 U.S.C. § 103(a) as obvious over the combination of Makino and Furutani; claims 30 and 34 as unpatentable under 35 U.S.C. § 103(a) as obvious over the combination of Makino, Furutani and either Holfelder or Friese;[3] and claim 31 as unpatentable under 35 U.S.C. § 103(a) as obvious over the combination of Makino, Furutani, Murase and/or Mase.[4] (Answer, pp. 3 to 6).

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[3] The Examiner appears to have withdrawn the Kojima reference, U.S. Patent 6,007,688, from this rejection. The Kojima reference was included in the statement of the rejection appearing in the Final Rejection.

[4] The Examiner has withdrawn the rejection of claim 33 under 35 U.S.C. § 112, second paragraph. (Answer, p. 2).

Appellants state on page 5 of the Brief "[f]or purposes of this appeal, arguments in support of patentability of claims 21-24, 27-35, 37 and 40-44 will be presented. Appellants reserve the right to present additional reasons why the dependent claims are patentable over the prior art." However, Appellants argue all of the claims together. As stated in 37 CFR § 1.192(c)(7),

> For each ground of rejection which appellant contests and which applies to a group of two or more claims, the Board shall select a single claim from the group and shall decide the appeal as to the ground of rejection on the basis of that claim alone unless a statement is included that the claims of the group do not stand or fall together and, in the argument under paragraph (c)(8) of this section, appellant explains why the claims of the group are believed to be separately patentable. Merely pointing out differences in what the claims cover is not an argument as to why the claims are separately patentable. (Underlining added for emphasis)

Appellants have failed to explain, for each ground of rejection, why the claims are believed to be separately patentable. We will consider the claims separately only to the extent that separate arguments are of record in this appeal. Note ***In re King,*** 801 F.2d 1324, 1325, 231 USPQ 136, 137 (Fed. Cir. 1986); ***In re Sernaker,*** 702 F.2d 989, 991, 217 USPQ 1, 3 (Fed. Cir. 1983); 37 CFR § 1.192(c)(7)(2001).[5]

[5] We note that the Examiner has proposed grouping the claims into two separate groups Group I: 21-24, 27-34 and 44; and Group II: 35 and 37-43. (Answer, p. 2). Appellants have acquiesced to this grouping in the Reply Brief page 2. However, the stated groups are not limited to the separate grounds of rejection. That is the groups as presented bridge the Examiner's basis of rejection.

Rather than reiterate the conflicting viewpoints advanced by the Examiner and Appellants concerning the above-noted rejection, we refer to the Answer and the Briefs.

DISCUSSION

We have carefully reviewed the claims, specification and applied prior art, including all of the arguments advanced by both the Examiner and Appellants in support of their respective positions. This review leads us to conclude that the Examiner's § 103 rejections are well founded. ***See In re Oetiker***, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992); ***In re Piasecki,*** 745 F.2d 1468, 1471-72, 223 USPQ 785, 787-88 (Fed. Cir. 1984). We affirm.

The Examiner has rejected claims 21 to 24, 27 to 29, 32, 33, 35, 37 and 40 to 44 as unpatentable under 35 U.S.C. § 103(a) as obvious over the combination of Makino and Furutani. (Answer, pp. 3-5).

We select claim 44 as representative of the claims rejected by the Examiner.[6] The subject matter of claim 44 is directed to an electrochemical sensor. The electrochemical sensor is produced by providing the sampled gas to the gas chamber of the electrochemical pump cell via the gas inlet opening, and completely covering the gas inlet opening with a

[6] The subject matter of claim 44 is the broadest of the rejected claims. Our selection of this claim is appropriate because the Appellants have indicated that the subject matter of claim 44 is patentable for the reasons discussed in connection with claims 21 and 35. (Brief, p. 8).

covering layer. After the gas inlet opening is covered, a porous cover is applied over the gas inlet opening so that the porous cover completely covers the gas inlet opening. According to the specification, page 6, the protective layer (23) simultaneously serves as the protective covering (24) for the gas inlet opening (11) of the gas inlet duct (10). The porous protective layer (23) is formed by sintering a paste (44). To prevent the paste (44) from penetrating the gas inlet duct (10) a thin sheet layer (43) is applied over the gas inlet opening (11). During the sintering process the thin sheet layer (43) burns away without leaving a residue or is transformed into a thin porous protective membrane layer. (Specification, p. 7). Thus, an electrochemical sensor that excludes a porous protective membrane layer would meet the subject matter of claim 44. This interpretation of the claim language is consistent with the requirement that the claims of the application are given the broadest reasonable interpretation consistent with the specification as they would be construed by one of ordinary skill in the art. ***See In re Sneed,*** 710 F.2d 1544, 1548, 218 USPQ 385, 388 (Fed. Cir. 1983).

Appellants agree with the Examiner that the distinction between the electrochemical sensor of Makino and the claimed invention is the protective membrane layer over the porous cover that covers the gas inlet opening. (Reply Brief, p. 3). As stated above, an electrochemical sensor that excludes a porous protective membrane layer would meet the

subject matter of claim 44. Consequently, the subject matter of claim 44 is not distinguishable from the electrochemical sensor of Makino.

In any event, the combination of Makino and Furutani also renders the subject matter of claim 44 unpatentable. The Examiner has concluded that it would have been obvious to include in the Makino invention a additional protective layer over the porous cover that also covers the gas inlet. The Examiner relies on the teachings of Furutani in rendering his conclusion. (Answer, p. 4).

The Appellants argue that the teachings of Makino and Furutani, either individually or in combination, do not teach or suggest completely covering a gas inlet opening with a cover layer and a separate porous cover over the gas inlet so that the porous cover completely covers the gas inlet opening. (Brief, p. 7, ll. 8-13; p. 8, ll. 2-5 and 20-23; Reply Brief, pp. 5-8).

We agree with the Examiner. The additional cover layer would enhance the diffusion and protective function of the cover structure compared to a single covering layer. It is not disputed that Makino discloses the use of a single cover layer protection and Furutani discloses the use of multi-layer cover protection for a gas sensor. This prior art would have suggested to one of ordinary skill in the art that a gas sensor could be protected by use of cover layers individually or in combination. Moreover, it has long been held obvious to

combine two known materials for their known function. ***In re Kerkhoven,*** 626 F.2d 846, 850, 205 USPQ 1069, 1072 (CCPA 1980); ***In re Pinten,*** 459 F.2d 1053, 1055, 173 USPQ 801, 803 (CCPA 1972); ***In re Lindner***, 457 F.2d 506, 507, 173 USPQ 356, 358 (CCPA 1972); ***In re Susi,*** 440 F.2d 442, 445, 169 USPQ 423, 426 (CCPA 1971); ***In re Crockett,*** 279 F.2d 274, 276, 126 USPQ 186, 188 (CCPA 1960). In the present case, one of ordinary skill in the art would reasonably expect that a cover layer for a gas sensor when used in combination, would each produce the same effect as when used individually and would supplement each other. A person of ordinary skill in the art would have also reasonably expected that using a multi-layer cover would have provide enhanced filtering in the protection of the gas sensor. "For obviousness under § 103, all that is required is a reasonable expectation of success." ***In re O'Farrell,*** 853 F.2d 894, 904, 7 USPQ2d 1673, 1681 (Fed. Cir. 1988). In light of the foregoing and for the reasons expressed in the Answer, it is our determination that the Examiner has established a ***prima facie*** case of obviousness with respect to the argued claims on appeal.

Obviousness cannot be rebutted by attacking references individually where the rejection is based upon the teachings of a combination of references. A reference must be read, not in isolation, but for what it fairly teaches in combination with the prior art as a whole. ***In re Merck & Co.,*** 800 F.2d 1091, 1097, 231 USPQ 375, 380 (Fed. Cir. 1986).

Appellants' argument regarding the teachings of Furutani alone does not properly address the rejection provided by the Examiner.

The Examiner rejected claims 30 and 34 as unpatentable under 35 U.S.C. § 103(a) as obvious over the combination of Makino, Furutani and either Holfelder or Friese. The Examiner also rejected claim 31 as unpatentable under 35 U.S.C. § 103(a) as obvious over the combination of Makino, Furutani, Murase and/or Mase. Appellants argue that the addition of Holfelder and Friese or Murase and Mase "do not cure the deficiencies of the Makino patent." (Brief, p. 9; Reply Brief, p. 12). In other words, the claims are patentable for the reasons presented in the above discussed rejection. The Examiner has presented reasonable arguments as to why the invention of the claims 30, 31 and 34 are unpatentable. The Appellants have not rebutted the Examiner's position that the additional limitations of claims 30, 31 and 34 are unpatentable. Thus, for the reasons stated above and in the Answer, the rejections are affirmed.

Based on our consideration of the totality of the record before us, having evaluated the ***prima facie*** case of obviousness in view of Appellants' arguments, we conclude that the subject matter of claims 21 to 24, 27 to 35, 37 and 40 to 44 would have been obvious to a person of ordinary skill in the art from the combined teachings of the cited prior art for the reasons stated above and in the Answer.

CONCLUSION

The Examiner's rejections of claims 21 to 24, 27 to 29, 32, 33, 35, 37 and 40 to 44 as unpatentable under 35 U.S.C. § 103(a) as obvious over the combination of Makino and Furutani; claims 30 and 34 as unpatentable under 35 U.S.C. § 103(a) as obvious over the combination of Makino, Furutani and either Holfelder or Friese; and claim 31 as unpatentable under 35 U.S.C. § 103(a) as obvious over the combination of Makino, Furutani, Murase and/or Mase, are affirmed.

Time for taking action

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a).

AFFIRMED

THOMAS A. WALTZ ***Administrative Patent Judge***	)
JEFFREY T. SMITH ***Administrative Patent Judge***	) **BOARD OF PATENT APPEALS AND INTERFERENCES**
JAMES T. MOORE ***Administrative Patent Judge***	)

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